



1076212

INSTRUCTIONS

This spreadsheet is designed to record the raw fiber counts for air and dust samples analyzed by TEM

This is version TEM32d

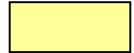
Raw Data Recording

Raw data are to be recorded by the analyst in hard copy using Lab sheet 1 and as many Lab Continuation pages as needed

Data Entry

Data on the hard copy lab sheets are to be entered electronically on data entry sheets 1 and 2

Areas for data entry are highlighted in **YELLOW**



OR are indicated by a **PULL-DOWN MENU**



Cells that are shaded gray do not require any data input

Cells that are shaded red either require data input or contain an apparent data inconsistency

Do not enter data in any other location!

Avoid the drag and drop method for copying.

Enter all values individually

File Save

After entering all data on Data Entry 1 (or any time thereafter), SAVE THE FILE by clicking on the macro button located on data Entry 1 or Data Entry 2.

The file name is generated automatically by concatenating information provided in Data Entry 1, in

a) EPA Index ID, b) Lab Sample Number, c) Counting Rule, d) Analysis Date, e) Prep method, and for example, if the EPA number is **2-012345** and the lab ID number is **abc-1234**, the method is

AHERA, the analysis date is **03-04-01**, the prep method is **Direct**, and the QA type is **Recount Same**

the file name will be: "**2-012345_abc-1234_AHERA_03-04-01_DRS.XLS**"

opened:

--if you open EXCEL and then open the TEM EDD, the new file will be saved in the same directory as the TEM EDD.

--if you open the TEM EDD from Explorer, then the file will be saved in you default directory for Excel (usually this is C:\Documents and Settings\My Documents)

TEM - General Counting Rules

Follow established project-specific counting and stopping rules.
Do not count non-asbestos material (NAM) structures.

ISO 10312 Counting Rules:

The lab analyst is responsible for identifying if a Bundle (B) is countable (i.e., substructures within have an aspect ratio greater than or equal to the specified aspect ratio). Aspect ratio rules do not apply to compact clusters, compact matrices, or residuals.
If a structure is non-countable (e.g., crosses the top or left grid bar), it should be identified with a "0" in the Total column.
All countable structures should be identified with a non-zero sequential number in the Total column. Enter a non-zero sequential number for any unique primary structure in the first row only. If there are multiple rows associated with the primary structure, it is not necessary to repeat the primary number in every row.
NOTE: Data Entry 2, column R is designed to flag any potential data entry errors associated with countable/non-countable assignments.

AHERA/ASTM Counting Rules:

Valid Structure Types are Fiber (F), Matrix (M), Cluster (C), and Bundle (B).

For Matrices (M), record the dimensions of the protrusion, not the matrix.

Note: Currently, the spreadsheet will incorrectly exclude one particular class of matrix structure from the AHERA binned results summary -- a matrix for which a protruding bundle has an aspect ratio less than 5:1, but the underlying fibrils meet the aspect ratio requirement. This is a limitation of the TEM spreadsheet.

If this type of structure is encountered, the analyst should note this issue in the analysis comments.

The lab analyst is responsible for identifying if a Cluster (C) or Bundle (B) is countable (i.e., substructures within have an aspect ratio greater than the specified aspect ratio). Do not record non-countable structures.

All countable structures should be identified with a non-zero sequential number in the Total column.

NOTE: Data Entry 3, column R is designed to flag any potential data entry errors associated with countable/non-countable assignments.

DATA ENTRY INSTRUCTIONS

Data Item	Description	Notes
DATA ENTRY 1		
File Type	Correction/revision status of the file	Select the appropriate File Type (original, correction 1, correction 2, correction 3, correction 4) from the pull-down list. The filename will be automatically updated to reflect the correction status (i.e., ".C1" suffix will be added to the "correction 1" file). It is not necessary to manually change the filename.
Laboratory Name	Name of lab performing analysis	Use a standard name for all sheets.
Instrument	Instrument used for analysis	
Voltage (KV)	Voltage used for analysis	
Magnification	Magnification used for analysis	
Grid opening area	Size of grid opening	Enter as a value in units of mm ² . This field should not contain any text.
Scale: 1L =	Scale adjustment factor for length	Enter 1.0 if dimensions are expressed as um. Otherwise, enter um per unit screen length.
Scale: 1D =	Scale adjustment factor for width	Enter 1.0 if dimensions are expressed as um. Otherwise, enter um per unit screen width.
Primary filter area	Size of primary effective filter area (EFA)	Enter as a value in units of mm ² . This field should not contain any text.
Secondary filter area	Size of secondary effective filter area (EFA)	Enter as a value in units of mm ² . This field should not contain any text.
Category	Sample type	Select the appropriate category (Field, Replicate, Duplicate, Blank) from the pull-down list.
Filter Status	Status of the sample filter	Select the appropriate category (Analyzed, Overloaded, Damaged, Missing, Cancelled) from the pull-down list.
EPA Index ID	Unique sample identifier	Enter the EPA Index ID exactly as it appears on the sample (ie: 2-00013). This field should not contain any spaces or a lab QA type suffix.
Sample Type	Sample media	Select the appropriate category (Air, Dust, Dustfall) from the pull-down list.
Air volume (L), dust area (cm2), or dustfall container area (cm2)	Air volume (L), dust area (cm2), or dustfall container area (cm2)	If the sample media is air, enter the air volume in units of L. If the sample media is dust, enter the dust sample area in units of cm ² . If the sample media is dustfall, enter the dustfall container area in units of cm ² . This field should not contain any text.
Date Received	Date sample was received by lab	Enter as a valid date with the format MM/DD/YYYY.
Lab Job Number	Job number assigned to analysis by lab	
Lab Sample Number	Sample identifier as designated by lab	If the sample is a lab QA Type, DO NOT add the QA suffix to the Lab Sample ID. If the file has been corrected or modified, DO NOT add "REV" to the Lab Sample ID. Use the File Type pull-down list to note the revision status.
Number of grids prepared	Number of grids prepared by lab	
Prepared by	Name of lab preparation personnel	Enter as first initial and last name (J. Smith)
Preparation date	Date sample was prepared	Enter as a valid date with the format MM/DD/YYYY.
EPA COC Number	EPA chain of custody number	
Analyzed by	Name of analyst	Enter as first initial and last name (J. Smith)
Date Analyzed	Date sample was analyzed by lab	Enter as a valid date with the format MM/DD/YYYY.
Prep	Analysis Prep Type	Select the appropriate Prep type (Direct, Indirect, Indirect - Ashed) from the pull-down list.
Loose Material in the Cow?	Is there loose material or debris in the saw?	If the sample media is air, select either "yes" or "no" from the pull-down list.
Counting Rules	Counting Rules utilized to analyze sample	Select the appropriate Counting Rule from the pull-down list. If the sample media is dust, select either ASTM-AHERA or ISO. If the sample media is air, select either AHERA or ISO.
Grid Storage Location	Grid storage location identifier	
F-factor Calculation:		For Direct prep, F-factor is set to equal 1 and specific F-factor calculations are not required.
Indirect Prep inputs:		
Fraction of primary filter used		Enter the fraction as a value. This field should not contain any text.
First resuspension volume or rinstate volume (mL)		Enter as a value in units of mL. This field should not contain any text.
Volume applied to secondary filter (mL) or used for serial dilution		Enter as a value in units of mL. This field should not contain any text.
Inputs for Serial Dilutions:		
Second resuspension volume (mL)		Enter as a value in units of mL. This field should not contain any text.
Volume applied to secondary filter (mL) or used for serial dilution		Enter as a value in units of mL. This field should not contain any text.
Third resuspension volume (mL)		Enter as a value in units of mL. This field should not contain any text.
Volume applied to secondary filter (mL) or used for serial dilution		Enter as a value in units of mL. This field should not contain any text.
Inputs for Ashing of Secondary Filter: (Note: only complete this cell if the SECONDARY filter was ashed. Leave blank if the primary filter was ashed.)		
Fraction of secondary filter used		Enter the fraction as a value. This field should not contain any text.
QA Type	Lab quality control code	Select the appropriate laboratory QA type (Not QA, Recount Same, Recount Different, Repreparation, Verified Analysis, Reconciliation, Lab Blank, Interlab) from the pull-down list.
Comments	Sample/Analysis comments	
Recording Rules:		
Minimum Aspect Ratio	Minimum aspect ratio of structures that are to be recorded	Select the appropriate minimum aspect ratio (none, ≥ 3:1, ≥ 5:1) from the pull-down list.
Minimum Length	Minimum length of structures that are to be recorded	Enter as a value in units of um. If no minimum length is specified, enter 0.00.
Minimum Width	Minimum width of structures that are to be recorded	Enter as a value in units of um. If no minimum length is specified, enter 0.00.
Stopping Rules (stop if any one of the following criteria are met):		
Target Sensitivity	Target sensitivity	Enter as a value in units of slices for air or skins* for dust or dustfall. This field should not contain any text. If no target sensitivity is required, leave this field blank.
Maximum # of GOs	Maximum # of GOs	Enter as a value. This field should not contain any text. If no maximum # of GOs has been established, leave this field blank.
Maximum # of Structures	Target # of structures	Enter as a value. This field should not contain any text. If no target # of structures is required, leave this field blank.
DATA ENTRY 2		
Data Entry by	Name of data entry personnel	Enter as first initial and last name (J. Smith)
Data Entry Date	Date results were entered	Enter as a valid date with the format MM/DD/YYYY.
QA by	Name of QA personnel	Enter as first initial and last name (J. Smith)
QA Date	Date results were QA'd	Enter as a valid date with the format MM/DD/YYYY.
Grid	Grid identifier	Enter the appropriate grid in the first row only. If there are multiple rows associated with the grid, it is not necessary to repeat the grid in every row.
Grid Opening	Grid opening location identifier	Enter the appropriate grid opening in the first row only. If there are multiple rows associated with the grid opening, it is not necessary to repeat the grid opening in every row. Indicate grid openings that DO NOT count chrysotile with an "x" following the grid opening name (eg. A-4"). Indicate grid openings that COUNTED ONLY A FRACTION OF THE GO for chrysotile with an "f" following the grid opening name (eg. A-4f). If only a fraction of the total GO was counted for chrysotile, you must enter the fraction of the GO counted in the appropriate column (Fract. GO Chrys.).
Structure Type	Structure Type code	Enter the structure type code. For ISO, see the analytical method for valid structure type codes. For AHERA, valid structure types are Fiber (F), Matrix (M), Cluster (C), and Bundle (B).
Primary	Primary Structure identifier	For ISO, enter a non-zero sequential number for any unique primary structure in the first row only. If there are multiple rows associated with the primary structure, it is not necessary to repeat the primary number in every row. This field is not used for AHERA or ASTM.
Total	Total Structure identifier	Assign a "0" to any non-countable or excluded structure and a non-zero number to any countable structure. **See specific instructions above for details on populating this field for ISO and AHERA/ASTM.
Length	Structure length	Enter dimensions either in absolute units (um) or in screen units.
Width	Structure width	Enter dimensions either in absolute units (um) or in screen units.
Identification	Identification	
Mineral Class	Description of the structure mineral class type	Enter a "1" in the appropriate column; choices include "LA" (Libby amphibole), "OA" (other amphibole), "C" (chrysotile). You may only select one mineral class type for each structure. NOTE: Do not enter "NAM" (non-asbestos material) structures.
Comments	Structure comments	
Sketch	Sketch	Enter a "1" in this column if yes, otherwise leave this field blank.
Photo	Photo	Enter a "1" in this column if yes, otherwise leave this field blank.
EDS	EDS	Enter a "1" in this column if yes, otherwise leave this field blank.
Fract. GO Chrys.	Fraction of GO counted for Chrysotile	If only a fraction of the GO was counted for chrysotile, enter the fraction counted as a value between 0 and 1 (eg: if only 1/4 of the GO was counted for chrysotile, the value entered would be 0.25).

Enter Project Name Here:

LIBBY

LIBBY
TEM Asbestos Structure Count

Laboratory name:	RESI
Instrument	JEOL 100 CX
Voltage (KV)	100 KV
Magnification	20,000
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 μ m
Scale: 1D =	0.056 μ m
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	201
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (μ m)	0.45

EPA Sample Number:	
Sample Type (A=Air, D=Dust, DF = Dustfall):	
Air volume (L), dust area (cm ²), or dustfall container area (cm ²)	
Date received by lab	
Lab Job Number:	
Lab Sample Number:	
Number of grids prepared	3
Prepared by	
Preparation date	
EPA COC Number:	
Secondary filter pore size (μ m)	0.22

Analyzed by	
Analysis date	
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	
If sample type = air, is there loose material or debris in the cow? (Yes, No)	
Counting rules (ISO, AHERA, ASTM)	
Grid storage location	
Archive filter(s) storage location	
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right----->

<u>Recording Rules:</u>		
Minimum Aspect Ratio (circle one):		
none	$\geq 3:1$	$\geq 5:1$
Minimum Length (μ m): _____		
Minimum Width (μ m): _____		

<u>Stopping Rules:</u>	
Target Sensitivity:	_____
Max # of GOs:	_____
Target # of Structures:	_____

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing <i>[For dust and dustfall, enter 1.0]</i>
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing
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LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

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STRUCTURE LOCATIONS WITHIN GRID OPENING

Lab Name: _____ Lab Job Number: _____

Index ID: _____ Lab Sample ID: _____

Lab QC Type (circle one): Reprep for interlab Interlab

Grid: _____ Grid Opening: _____

upper
left
corner

traverse direction

Comments:

FILE NAME: FC-00003 143576-176054 ISO 10-18-07 IA.xls

FILE TYPE: Original

LIBBY

TEM Asbestos Structure Count

Laboratory name:	RESI
Instrument	JEOL 100 C X
Voltage (KV)	100KV
Magnification	20,000
Grid opening area (mm2)	0.0110
Scale: 1L =	0.280
Scale: 1D =	0.056
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	346.0
Category	Field ▼
Filter Status	Analyzed ▼

EPA Sample Number:	FC-00003
Sample Type	Air ▼
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1180
Date received by lab	8/27/2007
Lab Job Number:	143576
Lab Sample Number:	143576-176054
Number of grids prepared	3
Prepared by	ND/KS/CL
Preparation date	9/20/2007
EPA COC Number	L12730

Analyzed by	A. Heitger
Analysis date	10/18/2007
Prep	Indirect - Ashed ▼
If sample type = air, is there loose material or debris in the cowl?	Yes ▼
Counting rules	ISO (Air or Dust) ▼
Grid storage location	143576
Archive filter(s) storage location	143576
Enter the appropriate data in the cells to the right to calculate the F-factor >>>>>	
F- factor	0.25
QA Type	Not QA ▼

Recording Rules:

≥ 3:1 ▼	Minimum Aspect Ratio
0.50	Minimum Length (um)
0.00	Minimum Width (um)

Stopping Rules:

0.00100	Target Sensitivity
107	GOs required to reach target sensitivity
100	Maximum # of GOs
50	Maximum # of Structure
100	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

1	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
100	First resuspension volume or rinsate volume (mL)
25	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

1	Fraction of secondary filter used for ashing
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0.25	F-factor
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COMMENTS

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LIBBY
TEM Asbestos Structure Count

EPA SAMPLE ID:
LAB SAMPLE ID:

FC-00003
143576-176054

Sample Type
Count Rule

Air
10312

Prep
QA Type

Indirect - Ashed
Not QA

ERROR CHECK

ERROR - Check Values

Data Entry by:

S. Gardalen

QA by:

G. Vettrano

Data Entry date:

10/29/2007

QA date:

10/29/2007

Maximum # of Structures Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
A	E2-6	F	1	1	70	6	ADX	1				WRTA, NaK, XGB (Leng	1	1	1	
		F	2	2	9	4	ADX	1				WRTA, NaK	1	1	1	
		B	3	3	13	4	ADX	1				WRTA, NaK	1	1	1	
		F	4	4	5	5	ADX	1				WRTA, NaK	1	1	1	
		F	5	5	22	10	ADX	1				WRTA, NaK	1	1	1	
		MD10	6													
		MF		6	9	4	ADX	1				AT, XX	1	1		
		MD10	7													
		MF		7	5	2	ADX	1				WRTA, NaK	1			
		MD10	8													
		MB		8	61	28	ADX	1				WRTA, NaK	1			
		F	9	9	26	16	ADX	1				WRTA, NaK	1			
		B	10	10	4	2	ADX	1				WRTA, NaK	1			
		B	11	11	14	22	ADX	1				WRTA, NaK	1			
		F	12	12	7.5	5	ADX	1				WRTA, NaK	1			
		F	13	13	4	5	ADX	1				WRTA, NaK	1			
		MD10	14													
		MB		14	38	15	ADX	1				WRTA, NaK	1			
		B	15	15	12	10	ADX	1				WRTA, NaK	1			
		MD10	16													
		MB		16	19	5	ADX	1				WRTA, NaK	1			
		MD11	17													
		MB		17	46	17	ADX	1				WRTA, NaK	1			
		MD10	18													
		MB		18	3	5	ADX	1				WRTA, NaK	1			
		F	19	19	12	3	ADX	1				WRTA, NaK	1	1		
		F	20	20	22	3	ADX	1				WRTA, NaK	1	1		
		MD10	21													
		MF		21	8	4	ADX	1				WRTA, NaK	1			
		B	22	22	6	7	ADX	1				WRTA, NaK	1			
		B	23	23	11	5	ADX	1				WRTA, NaK	1			
	C3-3	MD11	24													
		MF		24	97	5	ADX	1				WRTA, NaK	1			
		F	25	25	19	2	ADX	1				WRTA, NaK	1			
		B	26	26	74	8	ADX	1				WRTA, NaK, XGB (lengt	1			

		F	27	27	56	6	ADX	1				WRTA, NaK	1			
		MD11	28													
		MF		28	18	6	ADX	1				WRTA, NaK	1	1		
		F	29	29	3	3	ADX		1			UN, Non-Regulated			1	
		B	30	30	5	7	ADX	1				WRTA, NaK	1			
		MD11	31													
		MB		31	92	9	ADX	1				WRTA, NaK	1			
		F	0	0	7	18	ADX	1				WRTA, NaK	1			
		MD11	32													
		MF		32	26	4	ADX	1				WRTA, NaK	1			
		MD11	0													
		MF		0	76	5	ADX	1				AT, XX, XGB (wrong side	1			
		B	33	33	11	12	ADX	1				WRTA, NaK	1			
		F	34	34	14	14	ADX	1				WRTA, NaK	1			
		MD11	35													
		MB		35	23	8	ADX	1				WRTA, NaK	1			
		MD10	36													
		MF		36	12	3	ADX	1				WRTA, NaK	1			
		MD11	37													
		MF		37	22	9	ADX	1				WRTA, NaK	1			
		MD10	38													
		MF		38	9	5	ADX	1				WRTA, NaK	1			
		MD10	39													
		MF		39	7	4	ADX	1				WRTA, NaK	1			
		F	40	40	9	7	ADX	1				WRTA, NaK	1			
		MD10	41													
		MB		41	17	13	ADX	1				WRTA, NaX	1			
		MD11	42													
		MB		42	31	6	ADX	1				WRTA, NaK	1			
		MD10	43													
		MF		43	13	5	ADX	1				WRTA, NaK	1			
		MD11	44													
		MF		44	18	4	ADX	1				WRTA, NaK	1			
		B	45	45	6	5	ADX	1				WRTA, NaK	1			
		MD10	46													
		MB		46	14	5	ADX	1				WRTA, NaK	1			
B	E4-4	B	47	47	13	7	ADX	1				WRTA, NaK	1			
		B	48	48	9	5	ADX	1				WRTA, NaK	1			
		F	49	49	10	3	ADX	1				WRTA, NaK	1			
		B	50	50	22	8	ADX	1				WRTA, NaK	1			
		F	51	51	71	18	ADX	1				WRTA, NaK	1			
		MD11	52													
		MB		52	72	9	ADX	1				WRTA, NaK	1			
		MD10	53													
		MF		53	14	2	ADX	1				WRTA, NaK	1			
		MD11	54													
		MB		54	56	44	ADX	1				WRTA, NaK	1			

[illegible]

[illegible]

LIBBY**TEM Asbestos Structure Count -- Not AHERA****SAMPLE ID**

Status	Analyzed
EPA Sample Number	FC-00003
QA Sample Type	Not QA
Lab Sample Number	143576-176054
Sample Type	Air
Category	Field
Prep	Indirect - Ashed
Counting rules	10312

PARAMETERS

Number of Grid Openings (amphibole)	3
Number of Grid Openings (chrysotile)	3
Area of grid opening (mm2)	0.011
F Factor	2.50E-01
Effective primary filter area (mm2)	385.0
Effective secondary filter area (mm2)	346.0
Volume (L) or Sample Area (cm2)	1180
Area counted (mm2) for LA/OA	0.033
Area counted (mm2) for C	0.033

Recording Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	0

Stopping Rules:

Target S	Max GOs	Max N
0.001	107	50

TOTAL COUNTS

Total Structures	Not AHERA
Total Asbestos structures	Not AHERA
Total NAM	Not AHERA
Total Not AHERA structures	Not AHERA
Total Non-Not AHERA asbestos structures	Not AHERA

COUNTS (based on countable Not AHERA structures only)

	LA	OA	C	Total
Not AHERA Structures (< 5 um)	43	1	0	44
Not AHERA Structures (>= 5 um)	29	0	0	29

AIR CONCENTRATION (s/cc)

	LA	OA	C	Total	
Loading on primary filter (s/mm2)	7.8E+03	1.1E+02	<1.1E+02	8.0E+03	(if Total = ND, DL is based on LA)
Air Conc (s/cc)	2.6E+00	3.6E-02	<3.6E-02	2.6E+00	(if Total = ND, DL is based on LA)

DETECTION LIMITS

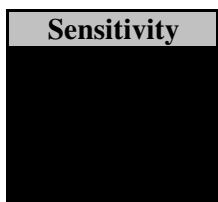
	LA/OA	C
Loading on primary filter (s/mm2)	1.1E+02	1.1E+02
Sensitivity (s/cc)	3.6E-02	3.6E-02

****DO NOT USE AHERA UPLOAD SHEET****

Note: Currently, the spreadsheet will incorrectly exclude one particular class of matrix structure from the AHERA binned results summary -- a matrix for which a protruding bundle has an aspect ratio less than 5:1, but the underlying fibrils meet the aspect ratio requirement. This is a limitation of the TEM spreadsheet. If this type of structure is encountered, the analyst should note this issue in the analysis comments.

Mineral Class	S<5u	S>5u	Q_ASBL	ASBL	Q_ASBC	ASBC

Sensitivity



LIBBY**TEM Asbestos Structure Count -- ISO 10312****SAMPLE ID**

Status Analyzed
 EPA Sample Number FC-00003
 QA Type Not QA
 Lab Sample Number 143576-176054
 Sample Type Air
 Category Field
 Prep Indirect - Ashed
 Counting Rules 10312

PARAMETERS

Effective filter area 346.0 mm²
 Indirect factor 2.50E-01
 Number of Grid Openings (amphibole) 3
 Number of Grid Openings (chrysotile) 3
 Grid opening area 0.0110 mm²
 Volume (L) or Area (cm²) 1180 L
 Sensitivity (amphibole) 3.55E-02 s/cc
 Sensitivity (chrysotile) 3.55E-02 s/cc

Recording Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	0

Stopping Rules:

Target S	Max GOs	Max N
0.001	100	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	11	0	0		
b	0	0	0		
c	17	0	0		
d	29	1	0		
e	11	0	0		
f	4	0	0		
Total	72	1	0	25	25

Check OK OK OK

Grand total 73 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	3.91E-01	<DL	<DL		
b	<DL	<DL	<DL		
c	6.04E-01	<DL	<DL		
d	1.03E+00	3.55E-02	<DL		
e	3.91E-01	<DL	<DL		
f	1.42E-01	<DL	<DL		
Total	2.56E+00	3.55E-02	<DL	8.89E-01	8.89E-01

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

Mineral Class	A_count	B_count	C_count	D_count	E_count	F_count	G_count
LA	11	0	17	29	11	4	72
OA	0	0	0	1	0	0	1
C	0	0	0	0	0	0	0

Sensitivity	A_conc	B_conc	C_conc	D_conc	E_conc	F_conc
3.55E-02	3.91E-01	<DL	6.04E-01	1.03E+00	3.91E-01	1.42E-01
3.55E-02	<DL	<DL	<DL	3.55E-02	<DL	<DL
3.55E-02	<DL	<DL	<DL	<DL	<DL	<DL

G_conc
2.56E+00
3.55E-02
<DL